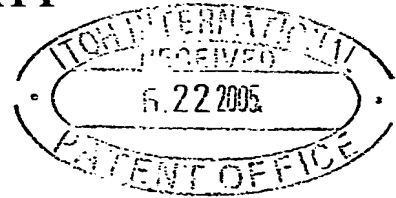


PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY



To:
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing **21. 6. 2005**
(day/month/year)

Applicant's or agent's file reference
R04364PCT

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/JP2005/006550

International filing date (day/month/year)
29.03.2005

Priority date (day/month/year)
31.03.2004

International Patent Classification (IPC) or both national classification and IPC
Int.Cl.⁷ H01L21/822, 27/04, 27/06

Applicant
RICOH COMPANY, LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Date of completion of this opinion **03.06.2005**

Name and mailing address of the ISA/JP

Japan Patent Office

3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan

Authorized officer

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4L 2933

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2005/006550

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/006550

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	4-6, 9	YES
	Claims	1-3, 7, 8	NO
Inventive step (IS)	Claims	4-6	YES
	Claims	1-3, 7-9	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO

2. Citations and explanations

D1:JP 3-173468 A(SEIKO EPSON CORPORATION)

1991.07.26

D2:JP 11-220094 A(SONY CORPORATION)

1999.08.10

D3:JP 6-188369 A(MOTOROLA JAPAN)

1994.07.08

D4:JP 9-116097 A(SEIKO EPSON CORPORATION)

1997.05.02

D5:JP 8-181219 A(NIPPON DENSO CORPORATION)

1996.07.12

D6:JP 8-46142 A(NIPPON DENSO CORPORATION)

1996.02.16

D7:Microfilm of the specification and drawings annexed to the written application of Japanese Utility Model Application No. 81054/1984 (Laid-open No. 81045/1984) (SANYOELECTRIC CO, LTD.)
1984.05.31

Claims 1,2

The subject matter of claims 1, 2 does not meet the requirement of novelty.

D1 (see line 18 upper right-hand page 2 to line 5 lower right-hand page 2, Fig. 1) discloses that the pad is placed between the protection resistance 4 and the MOSFET which consist of inverter.

D2 (see [0018]-[0024], Figs. 1-3) discloses that the pad is placed between the protection resistance 2 and the input buffer.

Claim 3

The subject matter of claims 3 does not meet the requirement of novelty.

D3 (see [0012]-[0018], Figs.1-2) discloses that the distance between the electrode, which connect the pad and the protection resistance 3, and internal circuit is greater than the distance between the other electrode, which connect the protection resistance 3 and internal circuit, and internal circuit.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: V. 2

D4 (see[0011]-[0012], Fig. 1) discloses that the distance between the electrode 4, which connect the pad and the protection resistance 3, and internal circuit is greater than the distance between the other electrode 4, which connect the protection resistance 3 and internal circuit, and internal circuit.

Claim 7

The subject matter of claims 7 does not meet the requirement of novelty.
D3 discloses that the pad is placed on an protection resistance.

Claim 8

The subject matter of claims 8 does not meet the requirement of novelty.
D1 discloses that the protection resistance is formed by the impurity diffusion layer.

Claim 9

The subject matter of claim 9 does not appear to involve an inventive step in view of the document D1, D2 and D5 cited in the ISR.

D5 (see [0003]-[0005], Fig.3) discloses that the protection circuit is formed by the resistance and transistor.

The technical feature in D1, D2 and D5 are concerned with mutually related technical field in an ESD protection of IC. Therefore, employing protection transistor disclosed in D5 to invention disclosed in D1, D2 would have been easily conceived by the person skilled in the art.

Claims 4-6

The subject matter of claims 4-6 is neither disclosed in any of the documents cited in the ISR nor obvious to a person skilled in the art.

D6 discloses that the impurity diffusion layer is formed surrounding the pad, the internal circuitry region and the protection resistance.

D7 discloses that the distance between the impurity diffusion layer and the electrode, which connect the protection resistance and pad, is equal in every point.

However, the feature that the distance between guard ring (surrounding the pad, the internal circuitry region, and the protection resistance) and electrode (which connect the protection resistance and pad) makes equal is not obvious for the person skilled in the art.